Space as a tool for analysis: Examining digital learning spaces

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Abstract

Over the past decade we have seen a rise in the adoption and proliferation of social technologies, and along with these a move to build on the capacity to embrace new pedagogies and practices that can open our boundaries for both teaching and learning. How do we determine what we mean by space specifically in online environments and how can we examine whether our intentions for learning in them are effective? How can these spaces be enacted *as* learning spaces and how do we design for them? We will need to develop new methods and frameworks for analysis which takes into consideration how we conceive, perceive and enact our digital spaces and how this impacts on our practices and approaches to teaching and learning within these spaces. This paper will explore how we envision space, how a spatial perspective might be used to help assess and design these spaces, and will provide an analytical framework to examine the tensions we encounter when teaching and learning in open digital spaces.

Keywords: Learning Spaces, Spatiality, Networked Learning, Open Learning, Social Learning

Introduction

As our spaces for learning evolve and shift from the traditional brick and mortar formal classroom, to increasing inclusion of online and computer-mediated ways of communicating and connecting, we to need to rethink how we think about space. Over the past decade we have seen a rise in the adoption and proliferation of social technologies, and along with these a move to build on the capacity to embrace new pedagogies and practices that can open our boundaries for both teaching and learning. There is recognition that our pedagogical approaches will need to change, in part to reflect new ideas about teaching and learning, but also to incorporate the uses of social technologies (Bayne, 2010; Conole, 2010). As we continue to adopt these new technologies, and the resulting spaces they create, we need to determine how to evaluate their effectiveness.

Anderson and Dron (2011) highlight three generations of pedagogies that they link to the development and availability of technologies that support them; cognitivism-behaviourism (pre-Internet), constructivism (advent of computer-mediated communications), and connectivism (online connections between networks). Though they highlight the need for the continued adoption of all three approaches, in the interconnected spaces of online teaching, a more networked and open approach, is often emphasized.

Networked Learning (NL) theories and approaches stem from a social-constructivist paradigm and as highlighted above, they are used to *promote connections.* Though one theoretical approach is not privileged over another, NL can be seen to "encompass an understanding of learning as a social, relational phenomenon, and a view of knowledge and identity as constructed through interaction and dialogue" (Ryberg, Buus & Georgsen, 2012, p. 46). Following this description we see networked learning environments created in a variety of ways, from a focus on what Ryberg et al. (2012) term "strongly tied collaborative work and dependencies" more commonly found in formal courses, to more loosely tied "social constellations" and individualized pathways characteristic of informal professional

learning networks. More recently with the rise of open, online courses (cMOOCs, Open Educational Resources Universitas (OERu) courses, and others), we see a blurring of the boundaries between formal and informal learning opportunities as educators use openness to try to overcome barriers to access and connectivity.

Though researchers have focused on the impacts of networks and specific social technologies on learning (Saadatmand & Kumpulainen, 2012) there is little on how the designed spaces created within these loosely knit learning environments are affecting learning processes and practices. How do we incorporate these networked learning principles into the design of open online learning spaces? How can these spaces be enacted *as* learning spaces and how do we design for them? How do we determine what we mean by space specifically in online environments and how can we examine whether our intentions for learning in them are effective? We will need to develop new methods and frameworks for analysis which takes into consideration how we conceive, perceive and enact our digital spaces and how this impacts on our practices and approaches to teaching and learning within these spaces. This paper will explore how we can envision space, how a spatial perspective might be used to help assess and design these spaces, and will provide an adapted model for creating an analytical framework to examine the tensions we encounter when teaching and learning in digital spaces.

Considering Space and Place

What do we mean when we talk about space in education? Typically, we think about physical spaces such as classrooms, desks, chairs, and digital spaces such as screens, websites, learning management systems (LMS), mobile phones, et cetera. As educators we often struggle within these locales, as they can often be uncomfortable, as the physical/virtual characteristics can be constraining and we have to wrangle with them as they are not designed for the practices that we want to encourage. We can all hearken to the classroom designed for lectures, which does not allow re-organization for group discussion, or the LMS discussion space, whose structure can lead to disjointed or fractured collaborative discourse.

A recent experience highlighted this dilemma. As part of a professional development day, I attended a workshop in "The Mountain Room" on workplace bullying and harassment. A beautiful room—light filled, airy, and large enough to hold over a 100 people, with one wall of glass, revealing stunning views of the surrounding mountains. The 30 or so chairs were arranged lecture style, huddled somewhat in the middle of the seemingly cavernous space, facing the front, where an elevated stage was set and the facilitator seemed trapped behind a lectern, looming down over the participants, who were distantly clustered, silent in their chairs. After ten minutes the facilitator almost stepped off the stage, narrowly missing a fall, and jokingly referred to her discomfort "up there," and the ice was broken. The lecture-style presentation shifted to a more likely original intent—a conversation and discussion between colleagues and peers concerning difficult concepts and conflicts within the workplace. We know that space matters, and, no matter how beautifully designed, if a space is used differently from what it is intended for then a sense of discomfort can be introduced, which then has an impact on the social processes and activities that are enacted within that space.

How did the mountain room become a learning space? By learning space, what do we mean? Part of the description involved a physical location, or what could be defined as a *place*, a room. I have experienced that *place* or location at different times as a meeting space, at others a celebration space, and in sadder moments as a memorial space. It became a learning space in that moment because

of the social practices being performed, informed by a variety of cultural norms and expectations. It was the expectations and possibilities of what might happen that made it a space.

From a geographical perspective, Thrift (2003) provides a notion of space which suggests space is

> "not a common-sense external background to human and social action. Rather it is the outcomes of a series of highly problematic temporary settlements that divide and connect things up into different kinds of collective which are slowly provided with the means which render them durable and sustainable" (p. 95).

Here he provides a relational view of space, where it is "not a container in which the world proceeds, but it is a co-product of these proceedings" (p. 95). Critical geographers Soja (1996) and Massey (2005) provide a similar perspective of space that emphasizes a dynamic relationship between social norms, how material and social structures influence these norms and how they are then embodied by individuals (Kuntz & Berger, 2011). According to this tradition, space is "a set of relations between individuals, groups and the material environment" (Kuntz & Berger, 2011, p. 245). It is these relations and how different aspects become "durable and sustainable" in our learning environments that can be of particular interest for considering the design of online spaces.

Spatiality has also been explored from a sociological perspective, and similarly to the ideas presented above, Mol and Law (1994) describe space as being constructed through various orderings or operations of objects and social relations. Using Actor Network Theory they describe several kinds of space including *regional,* where objects/relations are clustered within boundaries, *network* where the distances between elements and relations account for difference and *fluid* where boundaries allow for leaking or transformation. As Law (2002) highlights, this view of space emphasizes a multiplicity, where the structure of relations, boundaries, and objects are mutable and constantly shifting.

A recent focus on space and spatiality in educational research has adopted these notions of space. In this approach, material space, such as the design and use of a classroom, is not the equivalent of place and not the object, background or container to study. Space instead is a "dynamic multiplicity that is constantly being produced by simultaneous practice-so-far" and is "enacted, turbulent, entangled and hybrid" (Fenwick, Edwards & Sawchuk, 2011, p. 129). Mol and Law's (1994) ideas of *fluid space,* where boundaries between relations and objects can leak, disappear or transform without fracture, is relevant (p. 643). In this view, space could be considered mobile and permeable; open to new ideas and practices. Leander, Phillips and Taylor (2010) in describing learning spaces suggest that we need to go beyond what they term an "imagined geography" of "classroom-as-container" perspective, to one of mobility which highlights that classrooms "are not merely material spaces that are readily perceived but also conceived spaces (Lefebvre, 1991; Soja, 1989)—representations of space that powerfully shape our attempts at new visions and productions of education" (p. 333). In these views a spatial perspective can lead us to ask certain kinds of questions which may open up our thinking and lead to new approaches, both in research and educational practice. Fenwick et al. (2011) propose spatial analysis can help explore questions such as

> "how spaces become specifically educational or learning spaces; how they are constituted in ways that enable or inhibit learning; create inequities or exclusions, open or limit possibilities for new practices and knowledge; and how space is represented in the artefacts we use in educational practices, such as maps and pictures" (p. 129).

They suggest that particularly in educational situations where media and communication technologies are incorporated such as in distance and open learning that the "ordering of space-time" has a critical influence on learning and working.

Digital Spaces

Many researchers claim that our conceptions of space have been under-theorized and that we often overlook it, even though we need to constantly adapt to it in response to "the constraints and affordances of the material environment, technical resources and spatial practices of others" (Jacklin, 2004, p. 387). As Mulcahy, Cleveland and Aberton (2015) argue, little empirical research describing the experiences of teachers and learners in newly designed spaces using a *spatial* perspective has been done, and there is little known about whether or not the "potential for reimagined pedagogies has been realised" (p. 580). Recent research has focused on traditional learning spaces with physical locations (Ellis & Goodyear, 2016), but as Bligh and Crook (2017) argue, we will need methods to examine learning environments or material spaces that are situated in places and spaces that are digital or mediated by technologies. There is a recognition that these technologies are not neutral, and are, as Dodge (2005) describes "purely relational" and "not natural, but solely the productions of their designers, and, in many cases, users" (p. 118). Kitchin and Dodge (2011) identify this type of space, which is dependent on software-driven technologies to function, as a code/space, where "software and the spatiality of everyday life become mutually constituted, that is, produced through one another" (p. 16). Building on these ideas Williamson (2012) points out computer code and algorithmic process should be seen as "productive technologies that participate actively in social activity" (para 8). He suggests that

> "Increasingly, as code flows into our world through our desktop, handheld and networked devices (and particularly through inter-device interactivity and convergence), it acts as a template for contemporary life, creating "new landscapes of code" and structuring and patterning what we do and how we relate to one another" (para. 8).

Edwards (2015) suggests that this is the "hidden curriculum of software" where the knowledge infrastructures and software required to enact digital education have a built-in set of rules that govern and enact particular educational practices. As educators we need to recognize how this patterning and structuring, which effectively creates these rules, affects our spaces for learning and how we interact within them, particularly in online environments.

To explore the questions put forth by Fenwick et al. (2011) above, we will need to consider how learners and instructors use text, images, video and other representations to form their identities, social interactions, relationships and literacies in creating and inhabiting both material (offices, the train, chat rooms, discussion boards, Learning Management Systems (LMS) or Virtual Learning Environments (VLEs)) and conceptual (reflective, writing) learning spaces. As Thompson (2014) points out "web-based spaces are not containers in which online learning activities take place but rather fluid sociomaterial assemblages that take on particularities as people and things—both online and offline—negotiate how they move, mix, and mobilize in their correspondences" (p. 542). It is these negotiations and how they are impacted by the designed spaces of educational provision, and also how they then shift the spaces themselves, which needs to be considered by educators.

It was suggested earlier that technology (and hence the spaces it creates) is not culturally neutral. Goodfellow and Hewling (2005) argue that not only are virtual learning environments places where social and cultural production processes occur, they are also bound by pre-existing conventional systems that are defined by higher education cultural practices and norms. They point out that the nexus of cultural production is not solely within the discussions within the course, but is encompassed by the wide range of interactions and negotiations among the participants, which include "invisible actions mediated by background technologies (databases and servers) and implicit ones embedded in the relations with local institutional practices, and in relation to the wider discourses in online

learning in the information age" (p. 5). Hierarchies, roles, and rules are perpetuated and replicated in our digital spaces, and as we try to incorporate more participatory and emancipatory practices we need to uncover both the visible and invisible implications that might impede our attempts.

Space and culture are intimately intertwined, and as Fenwick et al. (2011) point out, space is "inscribed with particular meanings and different values for particular purposes" (p. 151). Ryberg (2008) contends that the typical LMS/VLE often reflects "an institutional, hierarchical perspective" both in the original design (though he concedes these tools are changing and expanding) and in their enactments, and that they are limited somewhat in the pedagogical models that can be used. Bayne (2008) echoes this as she describes one particular LMS as a space of "stability, hierarchy, continuity and conservatism" (p. 9) that inhibits both teachers and learners from "enacting creatively" with both digital technologies and innovative pedagogies. In contrast, many argue that by their very nature, social technologies can be characterized as being open, participatory, collaborative, democratizing and open to user-controls (Alevizou, Galley & Conole, 2012; Ryberg, 2008). For some, they can also be described as uncomfortable spaces as Bayne (2010) asserts, "For in working online as teachers and learners, we are working in 'destabilized' classrooms, engaging in spaces and practices which are disquieting, disorienting, strange, anxiety-inducing, uncanny" (p. 6). Even those educators and learners with deep experience in the digital can find themselves feeling uncertain or disoriented in these spaces, particularly when the spaces are disjointed and disconnected or when new practices and responsibilities are required (Knox, 2014; Ross, Sinclair, Knox, Bayne & Macleod, 2014). Where there is discomfort, there is also at times a sense of the new and emergent, where we create spaces that allow us to question our assumptions and ways of viewing the world, what Savin-Baden (2008) calls troublesome spaces.

Design for Learning Spaces

As highlighted in the previous section we cannot assume certain spatial configurations will lead to the types of practices or support the kinds of pedagogies we use, and in fact physical/virtual spaces can often constrain our ability to introduce new practices. As Bligh and Pearshouse (2011) argue "evaluating learning spaces is a valuable activity that can generate operational insights into how physical space affects learning, and can thus feed into processes of learning space design" (p. 3). In their review of current learning space evaluation models they contend that while we recognize that material spaces impact on the learning and practices related to them, little has been done to explore the links between spaces and theory. They also emphasize that many learning theories themselves rarely emphasize space, yet they promote the need for new configurations and practices that our existing spaces are not designed to support. Current learning space evaluations ignore these links, and as Boys (2011) highlights for anyone interested in understanding what makes a good learning environment, we need "tools for understanding the everyday social and spatial practices of learning – and of how these change" (p. 64).

As hinted at in an earlier section there is a growing trend to describe our educational spaces in oppositional terms. In traditional F2F settings there has been a move to design and describe spaces in a more welcoming way, which Boys and Smith (2011) assert "typically emphasise student-centred, playful, interactive and technology-rich environments." In the F2F realm these spaces are increasingly being designed with more informal identities, likely to include beanbag chairs, bright colours and flexible arrangements, and often termed "hubs", learning "cafés" or "study pods." This is contrasted with more traditional spaces which "are almost always set in opposition to a perceived norm of dull lecture halls, populated by dry pontificating professors lecturing to large groups of bored and passive students." (p. 33). These distinctions reflect our changing approaches to education and

the values that we attach to certain theories and methodologies, and the recent focus on socio-constructivist, learner-centered approaches.

These oppositional characterizations are also echoed in the descriptions of online environments. The "closed", "hierarchical" and "impenetrable" spaces of the LMS or VLE, are described as "walled" "behemoths" (McRae, 2014), and governed by "gatekeeping" through layers of logins and navigation. This is contrasted with a vision of learners "adventuring" into the "wild and open" spaces of the Internet (Dron & Anderson, 2014) where social technologies are hailed as "interactive, connected, free, easily accessed and accessible, and enabled to create dynamic and nuanced communities of learners" (McRae, 2014, p. 30). But we need to be careful in these assumptions as well, as Oliver (2015) argues that if we continually idealize "technologically mediated 'openness'" and flexible approaches to support "democratic, inclusive and radical ideals" (p. 366) we miss examining the complex and nuanced ways that these approaches also may lead to different kinds of exclusions and 'closed-ness'. Here we are set up to describe informal/open as good, and formal/structured as bad, and Boys and Smith (2011), McRae (2014) and others suggest these binary versions of our learning spaces, perpetuated by overly simplistic spatial metaphors and often lacking supporting evidence, allow us to avoid examining the complex relationships between learning and the spaces where it takes place. As McCrae argues, we need to explore further the discourse around the "celebration and revolutionary transformation of education deployed about socially networked online environments." Oliver (2015) also puts forward that rather than focus on the binaries of open/closed we should consider the ways in which "boundaries around education are both constructed and overcome" to explore how they are permeable (p. 373) and "what kinds of openness should be pursued" (p. 382). To consider these types of questions, a spatial lens, which allows the researcher to examine both social and material components, becomes a useful tool for examining complexity. As Fenwick and Landri (2012) point out, sociomaterial approaches can be used to "problematize learning processes entangled in widespread uses of new digital technologies" which through analysis can help make "visible the everyday, particular micro-dynamics of education and learning" (p. 4).

Building an Analytical Framework

In choosing to use social technologies, many instructors seem to be trying to move from spaces of enclosure to new spatial-temporal organizations for learning that are more open, participatory and fluid, and embody what was described earlier as troublesome space. As Goodfellow and Hewling (2005), Guimarães (2005) and others have noted, that to explore how these spaces are enacted both as spaces for learning and for cultural production, we need to examine both the visible practices of the participants as well as other invisible actions that are mediated by the physical environment and external practices. If we follow the ideas of Fenwick et al. (2011) and others that "space is not a static container" but is inscribed with particular meanings and values for different purposes, we will need to find a way to examine the space itself, as well as how participants use and inscribe different meanings within it, through their practices and their perceptions of these practices. As will be outlined in the next sections, to examine both the social and material, I suggest a two-tiered analytical framework. The first layer provides the means to examine everyday practices, including interactions between material and social spaces, through examination of the structures, communications and resulting practices over the span of a learning encounter. A spatial lens then allows exploration of how these practices signal contributors' negotiation and sense making of the resulting learning spaces.

Everyday Practices

Kuntz and Berger (2011) propose that "space is produced, rendered meaningful by a series of repeated activities that give shape to individual and collective identities. Constructed meaning is thus a product of both social and material environments" (p. 246). In their approach to analysis, they highlight that a division between the social and material is somewhat artificial, they argue that to allow for a clear analysis, both participants' perspectives (*the social*—practices, identities, interactions) and the influence on practice by the physical environment (*the material*—such as buildings, offices, computers, networks) needs to be examined. Carvalho and Goodyear (2014a) provide what they term an "architectural analysis" for examining learning networks, which they define as "assemblages of tools, artifacts, people, ideas and practices" (p. 14). They propose that to understand how design effects what emerges as the learning network is enacted we need to examine four elements: the set (or stage design), epistemic tasks (activities for learners), the social (emergent activity from design and tasks) and co-configuration (observed setting resulting from design). Both frameworks encourage the examination of how the material and the social interact, and provide a way examine the visible and invisible practices related to how the design of the material spaces (set design), including the tools and tasks (epistemic), are impacting the emergent learning culture (social and resulting practices). Data sources such as content analysis (of forums, posts, social media), web-sphere analysis (as per Schneider & Foot, 2005), social network analysis, surveys and interviews can all help provide a vivid description of the learning space as it evolves.

A Spatial Lens

As discussed earlier many researchers propose that in our examination of space we go beyond simplistic oppositional notions related to open/closed informal/formal to explore the relationships that happen within our designed spaces for learning. Student and instructor perceptions of their space as open/closed, formal/informal, transparent/opaque, local/global, reflective/active will influence how they both use and enact their spaces over time. Boys (2011) proposes a simplified analytical framework that links "material space and its occupation as learning" based on what she terms a simplified version of Lefebvre's three interwoven conceptions of space. She envisions the three spaces as being interconnected, with overlapping threads that have "gaps, unintended consequences, or contradictory elements both within and between them" (p. 56).

As per Boys (2011), below is an overview of Lefebvre's spatial triad:

- Spatial Practices—building on Lefebvre's ideas of the daily routines and inter-relationships of bodies, objects, space and time, spatial practices are the ordinary routines of existing educational provisions. In accordance with Sheehy (2009), this is the first space or the perceived space where we see patterns of pedagogy and learner practices and activities enacted.
- Representations of space—according to Lefebvre, this space is conceptualized by the "experts", architects/scientists/designers, and is realized through maps, plans, models and design. This space is often perceived as "legitimizing existing societal ideology" and Lefebvre describes this space as the imposition of the dominant world. Boys (2011) proposes to go beyond Lefebvre's ideas to imagine this as educational space not only being inscribed by instructors and designers, but by anyone who is trying to make sense of their world and thus uses space (conceptual, material, social or personal) as a way to attempt this (p. 55). Specifically, this is a representation of space "that attempts to design and transform the ordinary routines of learning" (p. 56).

- Representational space—According to Lefebvre, we intervene and adapt existing spaces to meet our own requirements and often inscribe different meanings on both our conceptual and material spaces. Boys describes this space as the "participants' perceptions of, relationship to and negotiations with both the "ordinary" routine of learning and specific designed transformations" (p. 56). Sheehy (2009) describes this as third space, where learners inscribe their own lived experience onto both the perceived and conceived spaces. This is the space of transformation.

Boys argues that by using this model to frame our analysis we can examine

> "how and why social meaning and practices come to be articulated, how they come to be recognized more generally (and by whom); and how they become translated in specific *repertoires* for example through a particular design approach and vocabulary used to convert specific ideas about learning into an actual material environment" (Boys, 2011, p. 61).

Here Boys uses the term repertoire to mean the wide range of processes and behaviours we habitually use in the everyday practices of education.

Boys (2011) also proposes that there are competing attempts to define the 'ordinary' routines of learning, which operate at three intersecting levels:

- direct learning encounters between learners/teachers (course or program level)
- institutional (resources, supports, technologies, accreditation requirements)
- society-wide conceptions of education (discourses around openness, technologies, implications of globalization)

This adapted framework, outlined in Figure 1, can be used to examine how learners and instructors negotiate and enact their spaces (representational) by exploring the inherent gaps and contradictory tensions that arise between design space (representations of space), and the ordinary routines of learning (spatial practices). It can be used perform an analysis to explore how these three different
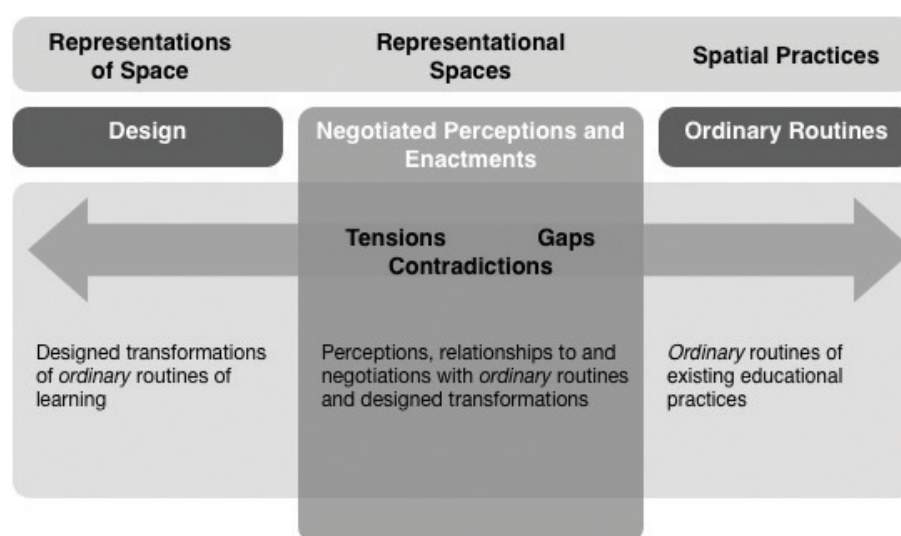
Figure 1: Boys (2011) framework of learning encounters, adapted for a spatial analysis of learning spaces

ideals of space interact and to identify possible tensions, which may impact on the types of activities and practices, our *repertoires,* which are enacted within the learning spaces. At the course encounter it could be used to trace how a course design principle, such as the use of OER or an open platform is enacted within the space and to highlight tensions that might arise as learners and instructors negotiate the spaces, both material and social, that are created. It can also be used to highlight how institutional decisions, such as resource allocation and technology support, are influenced by societal discourses about education, and when looking at how we design for encounters using social technologies could be used to interrogate how the discourses around openness or the MOOC movement may be influential or not.

Conclusion

Technology is changing rapidly and shrinking our sense of space/time by increasing our ability to connect across vast distances and spaces. Globalization is opening up our boundaries and the closed classroom spaces of F2F are not necessarily the norm for many learners. As a response to increased financial pressures, higher education institutions are looking for ways to cut costs, increase profits and attract more students, and over the past five years we have seen the rise of the MOOC being portrayed as way of disrupting the status quo through increased access for a worldwide audience.

Many educators are attempting to change their own practice to help create spaces that take advantage of the opportunities afforded by these rapidly evolving technologies and resulting *open* learning networks. As Audrey Watters highlighted in a recent keynote, we are looking to the potential of networked learning to fulfil the promise of the Internet to "– enable a readable and a writable platform, where a multitude of voices can express themselves as creators not just consumers and not just through text but through a multitude of media – audio, video, still images, code" (Watters, 2015, para. 15). As discussed earlier, this vision of open, inclusive, discursive space is that of the boundary or troublesome space where learners can create hybrid cultures where identities, genres, public/private and informal/formal are blurred and dynamic. To fulfill these utopian visions, we will also need to go beyond the *metaphor* of the network to look at the *material* infrastructures that provide and determine access, asking how these spaces are constructed, who owns them and how they then shape our educational spaces. Edwards (2015) emphasizes that we need to consider that these technologies work through code and knowledge infrastructures which "enact opportunities in particular ways" and that we need to question not just whether education is more or less open, but "what forms of openness are worthwhile and for whom" (p. 253). The material spaces available to us as educators often do not meet our needs. The hierarchically defined spaces created through digital tools, even those created by social technologies that many consider inherently more open and participatory, are only permeable and accessible in certain ways, and to certain types of practices. These underlying structures, with their own set of rules, ownership, and hierarchical ordering impacts the resulting spaces, dictating how learners and teachers can shape and interact with them.

In this paper I argue for developing a methodological approach that will allow researchers to ask critical questions about our designed spaces. A two-tiered analytical framework which combines the examination of everyday practices (the social) and material spaces (digital places), with a spatial analysis using Boys (2011) adapted framework, can help explore the complex entanglements between the material/social. It can identify the elements of a learning network and can focus on "what brings people together in terms of knowledge and knowing, the knowledge practices they engage in and the implications of these for design" (Carvalho & Goodyear, 2014b, p. 263). Ultimately, we recognize that it is the entanglement of the material/social that leads to the success/failure of a learning space to meet its intended outcomes.

One of the challenges for learning design is how to frame design intentions and then determine whether or not these were met and what may have affected the desired outcomes. The adapted version of Boys (2011) framework for analysing space can be used to examine how learners and instructors negotiate and enact their spaces (representational) by exploring the inherent gaps and contradictory tensions that arise between design space (representations of space), and the ordinary routines of learning (spatial practices). For my own professional role as a designer/teacher, it will provide a way to help examine how design intentions shift or change traditional approaches to learning or how new practices and pedagogies I introduce or adapt may be enabled or constrained.

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